WHAT IS CLAIMED IS:

1. A semiconductor apparatus comprising:

a semiconductor substrate having a first region and a second region isolated from the first region;

a first semiconductor device which is formed in the first region and which includes a first gate insulating film of a silicon oxide single film formed on the semiconductor substrate, and a first gate electrode formed on the first gate insulating film; and

a second semiconductor device which is formed in the second region and which includes a second gate insulating film of a single layer made of an insulating material of a dielectric constant different from that of the silicon oxide film, and a second gate electrode formed on the second gate insulating film.

2. The semiconductor apparatus according to claim 1, wherein the insulating material of the second gate insulating film has a dielectric constant higher than that of the silicon oxide film.

3. The semiconductor apparatus according to claim 1, wherein the first semiconductor device formed in the first region includes an element of a DRAM, and the second semiconductor device formed in the second region includes an element of a logic circuit.

4. The semiconductor apparatus according to claim 1, wherein a first voltage is supplied across the first gate insulating film, and a second voltage lower

than the first voltage is supplied across the second gate insulating film.

5. The semiconductor apparatus according to claim 1, further comprising a first gate side wall insulating film formed on a side wall of the first gate electrode, and a second gate side wall insulating film formed on a side wall of the second gate electrode.

6. The semiconductor apparatus according to claim 1, wherein the first semiconductor device has a gate side wall insulating film made of an insulating material different from that of the silicon oxide film on a side wall of the first gate electrode.

7. The semiconductor apparatus according to claim 5, wherein the first semiconductor device has an etching stopper film which is made of the same insulating material as that of the second gate insulating film and which covers the whole upper surface of the first gate electrode and at least a part of the first gate side wall insulating film.

8. The semiconductor apparatus according to claim 7, wherein the first semiconductor device has a third gate side wall insulating film made of the same material as that of the second side wall insulating film of the second semiconductor device on an etching stopper film side wall.

9. The semiconductor apparatus according to claim 7, wherein an interlayer insulating film is

formed on the first region to cover the first semiconductor device, and the interlayer insulating film includes a contact with respect to the semiconductor substrate which is formed in alignment with an end of the etching stopper film.

10. The semiconductor apparatus according to claim 1, wherein a double layer structure of gate side wall insulating films made of insulating materials different from each other is formed on a side wall of the first gate electrode.

11. The semiconductor apparatus according to claim 1, wherein the first semiconductor device includes an etching stopper film which is formed to cover the first gate electrode and which is made of the same insulating material as that of the second gate insulating film.

12. The semiconductor apparatus according to claim 5, wherein the gate side wall insulting films formed in the first semiconductor device and the second semiconductor device are made of the same insulating material.

13. The semiconductor apparatus according to claim 5, wherein a gate side wall insulating film is formed on the side wall of the second gate electrode of the second semiconductor device, and the second gate insulating film includes a high dielectric insulating film formed below the second gate electrode and the

gate side wall insulating film.

14. A method for manufacturing a semiconductor apparatus, comprising:

forming a silicon oxide film on a semiconductor substrate which includes a first region and a second region isolated from the first region;

removing the silicon oxide film formed on the second region;

forming, in the first region, a first semiconductor device which includes a first gate insulating film made of the silicon oxide film and a first gate electrode formed on the first gate insulating film;

depositing an insulating film of a dielectric constant different from that of the silicon oxide film to cover the first semiconductor device and a surface of the second region from which the silicon oxide film has been removed; and

forming, in the second region, a second semiconductor device which includes a second gate insulating film formed of the insulating film, and a second gate electrode formed on the second gate insulating film.

15. The method according to claim 14, comprising:

removing the insulating film deposited on the first semiconductor device when the second semiconductor device is formed.

16. The method according to claim 14, comprising:

forming a gate side wall insulating film on a side face of the first gate electrode of the first semiconductor device; and

removing, when the second gate insulating film is formed, the insulating film while a portion is left as an etching stopper film to cover the upper surface of the first gate electrode formed on the first semiconductor device and at least a part of the gate side wall insulating film.

17. The method according to claim 16, further comprising:

forming an interlayer insulating film in the first region to cover the first semiconductor device; and

forming a contact with respect to the semiconductor substrate in the interlayer insulating film in alignment with an end of the etching stopper film.

18. The method according to claim 14, comprising:

forming, after the second gate insulating film and the second gate electrode of the second semiconductor device are formed, a first gate side wall insulating film on an etching stopper which covers the upper and side surfaces of the first gate electrode formed on the first semiconductor device; and

forming a second gate side wall insulating film on a side face of the second gate electrode.